

OUR REF: J001335:HM:SR
DATE: 29 April 2024

Hinchinbrook Shire Council
PO Box 366
INGHAM QLD 4850
Attention: Paul Cohen
Via: email: council@hinchinbrook.qld.gov.au

Dear Paul,

RE: RESPONSE TO FURTHER ADVICE NOTICE – MATERIAL CHANGE OF USE [BATTERY STORAGE FACILITY], RECONFIGURING A LOT [CREATION OF LEASE AND ACCESS EASEMENT] AND OPERATIONAL WORKS [VEGETATION CLEARING] ON LAND AT EWAN ROD, FURBER ROAD AND KNUCKLEDOWN ROAD, MOUNT FOX AND DESCRIBED AS LOT 18 ON WU6, LOT 591 & 592 ON SP302249, LOT 57 ON SP237064 AND LOT 3 ON WG274.

HSC REF: MCU23-0005; OPW23-0007; RC23-0016

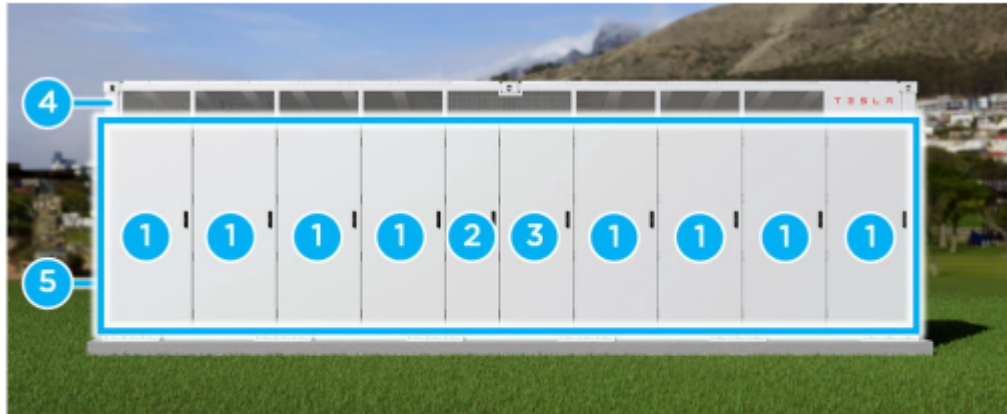
As you are aware, Gilvear Planning Pty Ltd (Gilvear Planning) has been engaged by Mount Fox BESS Pty Ltd (the 'Applicant') to provide town planning assistance in relation the Development Application lodged with Council seeking a Development Permit for a Battery Storage Facility and associated leases, easements and vegetation clearing on the above site.

A Further Advice Notice was issued by Hinchinbrook Shire Council ('Council') dated 27 March 2024 regarding additional matters that are required to be addressed prior to Council determining the application and accordingly, the following response is provided on behalf of the Applicant.

Firstly, it is considered relevant to outline and summarise the proposed technology to be established on site and outline the key design parameters which address the key concerns raised by Council.

- The type of Battery Storage System proposed is the Tesla Megapack XL and the Mount Fox BESS will include approximately 160-170 Megapack XL's installed. Each Megapack is 'self-contained' in that each battery cell is sealed, then contained within a steel container please refer to the below Figures:

Figure 2. Megapack Overview



1. Battery module bays ([Battery Modules on page 11](#))
2. Thermal cabinet ([Thermal System on page 12](#))
3. Customer Interface Bay ([Customer Interface Bay on page 13](#))
4. Thermal roof ([Thermal System on page 12](#))
5. IP66 enclosure ([Enclosure on page 13](#))

Figure 4. Battery Module



- Tesla Megapacks now utilise Lithium Iron Phosphate (LFP) as the cathode material. LFP offers enhanced safety compared to other lithium-ion technologies. One key safety feature is its stable thermal and chemical properties. LFP batteries exhibit high resilience during oxygen loss, a situation that can lead to exothermic reactions in other lithium cells. This resilience makes the cells less prone to ignition in case of mishandling, especially during the charging process. Additionally, LFP batteries do not decompose at high temperatures, further contributing to their safety.
- Tesla have undertaken extensive testing of LFP cells and Megapack XL which can be found in the provided Fire Protection Engineering Analysis report ([Attachment 1](#)). This report was an independent analysis of the Megapack XL (planned battery for MT Fox) during a fire event. It outlines the impact and emissions at a battery cell level as well as at a module level. In addition, a Megapack unit test was undertaken to prove fire propagation across Megapacks is derisked due to the cell and Megapack design.
- Any coolant fluid leaks are retained internally within the Megapack units. The transformers and components containing oil are also banded. In addition, natural water flows are diverted around the facility and catchment basins are installed to capture any water run off. In the highly unlikely event of a fire, water is not used as means to extinguish the fire, further reducing any run-off risk. However, even if water is used, testing of the Megapacks and water testing after a fire event of captured water

will be undertaken to assess ongoing water quality. Results from an independent assessment undertaken for the Victorian Big Battery (VBB) fire, confirmed that the risk of a material impact on water, following the VBB fire event, was minimal. This was undertaken with the EPA. A copy of the reporting prepared for the independent review has been provided in [Attachment 2](#).

- The independent report prepared on the VBB fire also confirmed that only trace amounts of acid gasses are released during a fire. These gasses, such as hydrogen fluoride, come from burning plastics, not battery cells. The concentrations are small enough that they are quickly diluted upon contact with the air, meaning there is no negative impact to air quality in the surrounding area.

The following information responds directly to the further information requested by Council.

1. ENVIRONMENTAL IMPACTS

The applicant is requested to submit to Council a copy of the detailed environmental assessments that have been undertaken.

To demonstrate compliance with 3.6.5 of the Strategic Framework, PO13 of the Rural Zone Code and PO1-8 of the Environmental Significance Overlay Code.

RESPONSE

4 Elements Consulting have undertaken various assessments which have ultimately informed the layout of both the stand alone battery project and the larger wind farm project since 2020. A full assessment of the entire site, including the related wind farm is available on the EPBC Act Public Portal (EPBC Reference No. 2021/8910). Due to the size of the environmental assessment reporting prepared in support of the proposed MFEP project, we note that copies of the reporting have not been attached to this correspondence. Notwithstanding this, the information has been summarised in the attached technical note ([Attachment 9](#)), which relates to the standalone battery project subject of this application. In particular, the assessments have informed the layout of the battery project to minimise the ecological impacts of the development through:

1. Realigning the access tracks to follow existing, established access tracks and fence lines within the property which have been cleared previously and also act as a bushfire trail.
2. The battery and physical buildings are located outside the mapped area containing waterway or waterbody and outside areas identified as very high value vegetation on Council's Environmental Significance Overlay Map. There is a single crossing required for long term access for operational vehicles, which will utilise the existing crossing (which may require upgrading). This is in compliance with AO1.1 of the Environmental Significance Overlay Code.
3. While vegetation clearing cannot be avoided, as the development is required to be located in close proximity to the substation and transmission line, the development has been appropriately designed and sited and can be operated and managed to ensure environmental impacts are minimised and/or avoided entirely, which is in compliance with AO2.2 of the Environmental Significance Overlay. Specifically, it is noted that:
 - Development has been located in highly disturbed vegetated areas;
 - Appropriate fire management infrastructure and buffers based on a site based bushfire hazard assessment (refer to item 4 below) have been incorporated into the development location, design and layout;

- Development location, layout and design ensures long term connectivity for fauna by avoiding key habitat corridors and values;
 - Development provides appropriate buffers to key biodiversity areas;
 - Development minimizes light and noise emissions through layout and distance to sensitive receptors, noting that the inverters and battery components are contained within a steel structure which is designed to reduce noise outputs. This is confirmed through the noise assessment contained in [Attachment 3](#).
 - Development will not result in the introduction of domestic animals onto the land; and
 - The residual impacts of vegetation clearing will be appropriately offset.
4. Proposed development is not located within or near a wetland or wetland buffer area which complies with PO5-PO7 of the Environmental Significance Overlay Code;
 5. Management of water quality impacts and integrity through establishing appropriate buffers to the infrastructure – with setbacks of at least 25m to the edge of any mapped waterway (Stream Order 1 and 2) which exceeds the minimum requirements of PO8 of the Environmental Significance Overlay Code. Appropriate measures will also be undertaken during construction to ensure erosion and sediment control measures as well as stormwater discharge to ensure run off into the surrounding waterways is appropriately managed. Development of a Water Quality Monitoring Plan will be undertaken to further ensure water quality and integrity is maintained throughout the life of the project, and will form part of the final pre-construction and operational Environmental Management Plans. Given that there are no specifications/standards applicable to water quality monitoring related to BESS developments, the Queensland Transport and Main Roads specifications ([Attachment 10](#)) will likely be adopted to inform preparation of the monitoring plan. All identified management strategies will contribute to ensuring that not adverse impacts to water quality occur as a result of development, which is in compliance with PO2 of the Environmental Significance Overlay Code.

It is also noted that the Department of Resources, as a technical agency responsible for the assessment of the application in relation to the State Development Assessment Provisions and specifically State Code 16 have approved the proposed clearing required for the project and requires offsets to be delivered to offset 42,905 hectares of remnant vegetation.

Accordingly, it is our view that the project has been designed and can be operated in a manner that appropriately mitigates potential impacts on the existing environment in accordance with the requirements of the Planning Scheme.

2. SAFETY AND EMERGENCY MANAGEMENT PLAN

*The Applicant is requested to submit a **Safety and Emergency Management Plan ('SEMP')** addressing construction and operations, and include the following information at a minimum:*

- i. *a Hazard Analysis and Risk Assessment (HARA) undertaken in accordance with AS/NZ ISO 31000:2009 Risk Management Principles and Guidelines and with HB203:2006 Environmental Risk Management Principles and Processes.*
- ii. *evacuation plans for the construction and operation phases of the development.*
- iii. *safety management plans and emergency response procedures in consultation with the state and regional emergency service providers and provide an adequate level of training to staff who will be tasked with emergency management activities.*

To demonstrate compliance with 3.2.5 and 3.6.5 of the Strategic Framework, PO13 of the Rural Zone

Code, PO3 of the Bushfire Hazard Overlay Code and PO1-8 of the Environmental Significance Overlay.

RESPONSE

Please refer to the attached Health and Safety Management Plan and Emergency Response Plan Templates as [Attachment 4](#), which have been provided by one of the shortlisted Contractors. These templates will be further developed in consultation with the Queensland Fire and Emergency Services ('QFES') once a Contractor has been appointed and provide a structure of the typical elements included within these plans. Initial consultation with QFES has indicated that they are looking at the Victorian CFA guidelines on battery projects and Tesla, due to their safe design and experience, are the most compliant against these guidelines having gone through QFES and CFA review on several projects to date. Both plans will also need to complement other plans in place/relevant to the project, such as the Bushfire Management Plan ([Attachment 11](#)).

The Health and Safety Management Plan outlines the environmental health and safety rules, guidelines and requirements for the project's life. It is expected that all workers, contractors, labour hire, visitors and suppliers working at the location shall abide by the strategies in place. In summary, these strategies set out procedures, policies and guidelines for day to day business/operations, such as:

- communications/meetings
- roles and responsibilities
- employee engagement
- training, inductions, and site access
- document control and review
- events, hazards and crisis management
- emergency preparedness and response
- audits and inspections
- continuous improvement
- risk management
- contractor management
- safety
- environment
- health

Emergency Response Plans however are slightly different and provide additional detail/guidance on the common types of emergencies/hazards as well as setting clearing directions on the procedures that should be implemented/followed either before, during or after an event.

In the event of an emergency/hazard, incidents will be appropriately managed in accordance with the endorsed Health and Safety Management Plan and Emergency Response Plan, which is in compliance with 3.5.2 and 3.6.5 of the Strategic Framework as well as the Overall Outcomes and Purpose of the Bushfire Hazard Overlay Code. The appropriate and coordinated use of adopted plans/strategies will ensure that impacts on surrounding land uses and ecological values can be mitigated during the event of an emergency and/or hazard.

It is anticipated that any approval would be conditional upon submission of a final Health and Safety Management Plan and Emergency Response Plan to ensure that these Plans/Strategies have been appropriately prepared and/or endorsed by an accredited person and furthermore have been implemented prior to construction. Additionally, it is noted that the plans will need to be approved from QFES prior to their implementation.

3. AMENITY ASSESSMENT

*The applicant is requested to submit a **Noise, Air and Odour Assessment** that assesses and addresses the impacts associated with the construction and operational phases (including faults/failures of the BESS) of the proposed development, and any required mitigation measures.*

To demonstrate compliance with 3.2.5 and 3.6.5 of the Strategic Framework, PO13 of the Rural Zone Code, PO3 of the Bushfire Hazard Overlay Code and PO1-8 of the Environmental Significance Overlay.

RESPONSE

In terms of air and odour – the BESS itself is a solid structure being sealed battery cells (which contain lithium electrodes), which are contained within a steel box, on concrete slabs and gravel buffers so that there are limited emissions during normal operating conditions. Potential hazards include:

Mechanical damage, which may result in leaked battery pack coolant, refrigerant, cell electrolyte and rapid heating and fire. Hazards associated with leaked coolant, refrigerant electrolyte are remote on the basis that the quantities stored within each cell are limited and as the cells are hermetically sealed (i.e. airtight), the volume released is generally of negligible concern and generally contained within the container, on the slab or ground below. In the event that large amounts of liquid was exposed during a high rainfall event, it would not be able to leach out into the environment, due to the provision of suitably sized and located runoff/catchment basins (for additional details of measures to be implemented to address runoff, refer to the draft Overarching Erosion and Sediment Control Plan in [Attachment 5](#)), which demonstrates compliance with 3.6.5 of the Strategic Framework, given that development has been appropriately designed and constructed to ensure impacts on surrounding land uses is mitigated.

When fire occurs, gases from a Megapack fire are similar to those of a typical structure fire: hydrogen, carbon dioxide, carbon monoxide and methane. Only trace amounts of acid gasses are released during a fire. These gasses, such as hydrogen fluoride, come from burning plastics, not battery cells. The concentrations are small enough that they are quickly diluted upon contact with the air, meaning there is no negative impact to air quality in the surrounding area. Refer also to the VBB report (Attachment 2) for EPA conclusions as well as the independent fire report in attachment 1 which has tested the latest LFP cell technology that was not available at the time VBB was built.

In relation to noise, please refer to the attached Noise assessment of the site, prepared by Resonate Consulting is included as [Attachment 3](#). The noise reporting includes modelled noise emissions from the Megapack XL's (including inverters) and High Voltage substation components the Power Transformers, based on the specifications provided by the potential supplier, as well as anticipated construction noise. This report shows no exceedances of noise limits for the BESS at any of the nearby receptors.

The assessment confirms that the proposal is capable of complying with the acoustic objectives outlined in *Environmental Protection (Noise) Policy 2019*.

Further, it is anticipated that Council will require a condition of any approval to require that all construction and operational noise is to comply with the *Environmental Protection (Noise) Policy 2019*, when measured at the

closest sensitive receptor. Complementing this will be the requirement for a Construction and Operational Management Plan that establishes management procedures to respond to any noise complaints. Council may also consider a requirement to take noise measurements of the equipment once installed to confirm that the assumptions which informed the noise modelling are correct and where necessary, corrective measures implemented.

Accordingly, the development complies with or is capable of complying through conditions of approval, the relevant assessment benchmarks applying to the development in respect to Noise.

4. BUSHFIRE HAZARD

The applicant is requested to submit an amended Bushfire Management Plan that addresses any potential increase in bushfire hazard associated with faults/failures of the BESS and associated infrastructure.

To demonstrate compliance with 3.2.5 and 3.6.5 of the Strategic Framework, PO3 of the Bushfire Hazard Overlay Code and PO2 of the Environmental Significance Overlay.

RESPONSE

Typically, a Bushfire Management Plan is required to manage the effects of bushfire upon the development, and not originating from the development itself. The layout has been informed by a detailed bushfire assessment (included as Attachment 6 of the original application), which requires a buffer between the physical infrastructure and adjoining vegetation of 45m in all directions. In some areas this maybe greater where areas such as the North of the BESS contain gravel roadway between the physical infrastructure and fencing area. Accordingly, the design allows for 45m around all infrastructure between the vegetation and buildings. Access to the site is improved via establishing wider tracks and formalised access tracks to and from the development, as well as increasing the water supply available at the site. The cleared area will be managed throughout the operational life of the project to ensure that vegetation is maintained at a safe distance. This addresses the typical bushfire risk as outlined in Bushfire hazard overlay code.

In relation to the risk the proposal presents in terms of fire originating from the development, as outlined above and within **Attachments 1 and 6**, the fire risk of the Tesla Megapacks have been reduced through built in safety and monitoring features, specifically containing hardware and software that are designed and tested to prevent system errors and if they do occur, prevent them from escalating. Simply, such systems are remotely monitored 24/7 through the built in control systems to identify and stop events early that could lead to a thermal run away event.

In line with CFA guidelines on Renewable Energy Facilities, although water is not required on a BESS fire, MF BESS will have over **500,000l of static water tanks and hydrants within the site**. This water can be used for a fire at the facility but also to help the rural fire brigade to battle bushfires in the area outside the facility. In addition to the CFA requirements MF BESS will have thermal cameras located for early detection of bushfires around the facility, again assisting the rural fire brigade in early detection of bushfires, which demonstrates compliance with PO3 of the Bushfire Hazard Overlay Code.

Any increase in fire risk can be appropriately managed through vegetation management for both the battery and transmission lines.

It is anticipated that any approval would be conditional upon submission of a final bushfire assessment and management plan to deal with the bushfire risks.

5. TRAFFIC/HAULAGE ROUTES

The applicant is requested to provide details of the proposed routes to manage traffic and limitations on the capacity of Mount Fox Road (the range road).

To enable Council to formulate reasonable and relevant conditions of any approval, understanding that a Traffic Impact Assessment will address these matters in much more detail.

RESPONSE

Detailed assessments and determination of preferred haulage routes have been undertaken for the project and at this stage, the proposed haulage routes for delivery of components is largely outside of Hinchinbrook Shire Council Local Government Area boundary, being via Hidden Valle as shown in [Attachment 7](#), with only minimal deliveries of light vehicles expected to use Knuckledown Road via the range road.

As anticipated for a project of this nature, both a Traffic Management Plan and Traffic Impact Assessment will be conditioned on any approval, required to be undertaken prior to construction to adequately identify the road upgrades required to be undertaken prior to construction commencing, and then again post construction to ensure relevant standards are maintained. This will be in addition to any formal upgrades within the project site and directly adjoining the project site. It is expected that a separate agreement will be necessary to deal with upgrades to road sections beyond the project site boundaries through a Road Agreement or similar.

It is noted that to reduce construction traffic, the use of a minibus or similar will be provided to reduce overall traffic with road use from Ingham to be restricted.

The following 'relevant matters' have been identified in support of the application, and include:

1. Appropriate use and compatibility of the site for the Rural Zone.

- (a) The sites Rural Zoning assumes rural production has or can occur, despite the fact that there has been an historical lack of agricultural productivity on that part of the land proposed for the use, given the significant infestation of invasive species which limits the ability for stock to move and graze throughout the area. Notwithstanding this, the MFEP BESS will not impact on the existing rural land uses by limiting the footprint of development and co-locating the battery with the existing Switching Station and Transmission lines. It is intended that the project site will continue to be used for grazing in conjunction with the proposed Wind Farm and/or Battery Storage land uses/operations.
- (b) Strategic objectives recognise the need for and benefits of electricity generation for the area (Regional Plan and Strategic Framework) and encourage the development of non-rural uses on land where impacts to rural amenity and values, including the protection of productive land is avoided or minimised and in keeping with community expectations.

- (c) The proposal maintains the rural/open space landscape character of the area by having a built form that is low rise, limited impervious areas limited to gentle slopes that are generally not heavily vegetated, so that visual amenity is maintained.
- (d) The site is appropriate having regard to climate criteria, elevation and topography, proximity to electricity infrastructure, vegetation cover. That is, the site is strategically located adjacent to (west of) the Guybal Munjan Switching Station, which forms part of the Kidston Clean Energy Hub. The Kidston Clean Energy Hub is expected to connect to the Queensland grid via a 275kV electricity transmission line and switching stations, collectively referred to as the Genex Kidston Connection Project. Kidston Clean Energy Hub will also support the Far North Qld Renewable Energy Zone (REZ), identified in the recently released QLD REZ Roadmap. The Far North Qld REZ is expected to install 500-700MW of generation.
- (e) The nature of the renewable energy facility results in a development that is readily removed upon decommissioning with the land able to be returned to its pre-development state and as such the productive capacity of the future rural land is not prejudiced. The BESS comprise ~0.1% of the overall land area. Further, with a lifespan of 30+ years and is therefore 'temporary' in nature therefore ensuring long term rural production is maintained.
- (f) The subject site is located within the Solar Energy Development Precinct, pursuant to Council's Local Planning Scheme. While the proposal is not for Solar energy and/or infrastructure, the proposed MFEP BESS will help to facilitate/support future renewable energy projects, which is considered to be consistent with the intent of the Solar Energy Development Precinct.
- (g) The proposal complies with the relevant assessment benchmarks of the Rural Zone Code.

2. Advancement of higher order State policies including:

- (a) The benefits of renewable energy for Queensland in general. Between 2015 and 2021 Queensland's renewable energy sector has contributed over \$10 billion of investment across the state, supported more than 7,000 construction jobs, and dramatically increased the share of renewable electricity. The share of electricity generated by renewable sources has grown from less than 8% in 2015 to more than 20% in 2021 (Source: Technical Discussion Paper, Delivering Queensland Renewable Energy Zones, 2021)
- (b) Support for the development of renewable energy projects through the Queensland Renewable Energy Zones ('QREZ') areas, as a result of the Future Security of the National Electricity Market Independent Review (i.e. the Finkel Review). The MFEP BESS is within proximity/connects into the recently constructed Guybal Munjan Switching Station, which forms part of the Kidston Clean Energy Hub. The Kidston Clean Energy Hub will also support the Far North Qld Renewable Energy Zone (REZ), identified in the recently released QLD REZ Roadmap. The Far North Qld REZ is expected to install 500-700MW of generation.
- (c) The project will contribute upwards of 300MW of power capacity to the wholesale network to assist in achieving the target of 500-700MW of installed generation as part of the Far North Qld REZ.
- (d) Compliance with and furthering the goals of the State Planning Policy. The location of the site in terms of proximity to large scale transmission lines highlights the potential efficiency of the project without the need for new easements. In addition, the lack of significant environmental values,

difficult topography and productive agriculture is significant in determination of an appropriate location for such development.

- (e) Assisting in meeting State government's renewable energy targets of 70% of renewable energy by 2032 and 80% by 2035 as outlined in the Queensland Energy and Jobs Plan. It is intended that construction of the MFEP BESS, if approved, could commence later this year.
- (f) Consistency with North Queensland Regional Plan policies which encourage and support the establishment of renewable energy developments within strategically located areas.

3. Ability to manage impacts and absence of unacceptable impacts:

- (a) Advantage of the technology chosen:
 - i. The mega packs are limited in height and strategically located (buffered by established/existing vegetation) which reduces visual impacts.
 - ii. Tesla Megapacks now utilise Lithium Iron Phosphate (LFP) as the cathode material which enhances the safety of the product compared to other lithium-ion technologies.
 - iii. Product safety features are extensive and ensure the risk of environment impact is reduced (i.e. battery cells are fully encased in metal casings and constructed on concrete footings which are further surrounded by gravel). Further water basins are installed to capture rain and water fall around the facility.
 - iv. Reduction in earthworks, as the BESS has been appropriately located/sited in an area with limited slopes and already heavily disturbed.
- (b) Ability to comply with the most stringent noise criteria outlined in the Environmental Protection Policy (Noise) 2019 as demonstrated by the Noise Assessment Report prepared by Resonate included as [Attachment 3](#).
- (c) The site is highly disturbed, with regrowth vegetation retained outside the development footprint.
- (d) Appropriate buffers to watercourse and natural drainage features are provided, through establishing 25m setbacks either side of mapped centrelines.
- (e) Suitable bushfire buffers provided to minimise bushfire risk.
- (f) Stormwater can be appropriately managed on site to ensure negligible impacts on existing flow paths as demonstrated by Erosion and Sediment Control Plan prepared by Topo as [Attachment 5](#).
- (g) Environmental impacts, where unavoidable, will be appropriately managed to ensure impacts not significant, as demonstrated in the Rehabilitation Management and Vegetation Management Plans prepared by 4 Elements Consulting, refer to [Attachment 8](#).
- (h) Location of the site ensures no additional transmission infrastructure external to the site is required to support the generation (i.e. no easements), apart from the small portion of transmission line required to connect into the Guybal Munjan Switching Station.

4. Direct community benefits resulting from the proposal

- (a) Mount Fox Energy Park recently announced the Community Initiatives from the MFEP Wind Farm and BESS. The funds available for the BESS component of the project are as follows:
 - i. \$30k/year community benefit fund; and
 - ii. \$15k/year ecology benefit fund.
- (b) Over 40 construction jobs and up to 4 permanent jobs.
- (c) Supports a major 'enabler' of employment more broadly (i.e. electricity generation).
- (d) High level of community awareness – the consultation undertaken for the development far exceeds minimum public notification requirements and included several community stakeholder meetings (one of which was on site), project information mailed to residents throughout the local area, ongoing website information and updates, direct engagement through phone calls and meetings, as well as an extended statutory public consultation period.
- (e) The development is a catalyst opportunity for manufacturing within the local area and/or warehousing/distribution and logistics supply chains.

We trust that this is sufficient for Council to determine the application.

Should additional information be required, please contact the undersigned on 0448 897 991 or via email at kristy@gilvearplanning.com.au.

Kind regards,



Kristy Gilvear
MANAGING DIRECTOR